

What is claimed is:

1. A stage assembly that moves a device an X stroke along an X axis and along a Y axis, the stage assembly comprising:

a guide base;

5 a stage that retains the device; and

a Y mover that moves the stage along the Y axis relative to the guide base, the Y mover including a reaction component and a moving component that is secured to the stage; wherein one of the components includes a magnet having a magnet length that extends along the X axis and the other component includes a conductor having a conductor length along the X axis, and wherein the magnet length is sufficiently long so that the magnet interacts with the conductor over the range of the X stroke.

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15 2. The stage assembly of claim 1 wherein the magnet length is at least as long as the combination of the X stroke along the X axis plus the conductor length.

20 3. The stage assembly of claim 1 wherein the reaction component includes the magnet and the moving component includes the conductor.

4. The stage assembly of claim 1 wherein the reaction component includes a plurality of spaced apart magnets.

25 5. The stage assembly of claim 1 wherein the reaction component includes the conductor and the moving component includes the magnet.

30 6. The stage assembly of claim 1 further comprising an X housing mover that moves the stage the X stroke along the X axis relative to the guide base.

7. The stage assembly of claim 1 wherein the magnet length is sufficiently long so that substantially the entire conductor remains within the magnetic fields of the magnet throughout the entire X stroke.

5 8. An exposure apparatus including the stage assembly of claim 1.

9. An object manufactured with the exposure apparatus according to claim 8.

10 10. A wafer on which an image has been formed by the exposure apparatus of claim 8.

11. A stage assembly that moves a device an X stroke along an X axis and along a Y axis, the stage assembly comprising:

15 a guide base;

a stage that retains the device; and

a Y mover that moves the stage along the Y axis relative to the guide base, the Y mover including a reaction component and a moving component that is secured to the stage; wherein one of the components includes a magnet having a magnet length that extends along the X axis and the other component includes a conductor having a conductor length along the X axis, and wherein the conductor length is sufficiently long so that the conductor interacts with the magnet over the range of the X stroke.

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12. The stage assembly of claim 11 wherein the conductor length is at least as long as the combination of the X stroke along the X axis plus the magnet length.

13. The stage assembly of claim 11 wherein the reaction component includes the magnet and the moving component includes the conductor.

14. The stage assembly of claim 11 wherein the reaction component includes a plurality of spaced apart magnets.

5 15. The stage assembly of claim 11 wherein the reaction component includes the conductor and the moving component includes the magnet.

16. The stage assembly of claim 11 further comprising an X housing mover that moves the stage the X stroke along the X axis relative to the guide base.

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17. An exposure apparatus including the stage assembly of claim 11.

18. An object manufactured with the exposure apparatus according to claim 17.

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19. A wafer on which an image has been formed by the exposure apparatus of claim 17.

20 20. A method for making a stage assembly that moves a device an X stroke along an X axis and along a Y axis, the method comprising the steps of:

providing a stage that retains the device;

providing a guide base; and

25 moving the stage along the Y axis relative to the guide base with a Y mover, the Y mover including a reaction component and a moving component that is secured to the stage; wherein one of the components includes a magnet having a magnet length that extends along the X axis and the other component includes a conductor having a conductor length along the X axis, and wherein the magnet length is sufficiently long so that the magnet interacts with the conductor over the range of  
30 the X stroke.

21. The method of claim 20 wherein the magnet length is at least as long as the combination of the X stroke along the X axis plus the conductor length.

5 22. The method of claim 20 wherein the step of moving the stage includes the step of providing a reaction component that includes the magnet and the step of providing a moving component that includes the conductor.

10 23. The method of claim 20 further comprising the step of moving the stage an X stroke along the X axis relative to the guide base with an X mover.

15 24. A method for making an exposure apparatus that forms an image on a wafer, the method comprising the steps of:  
providing an irradiation apparatus that irradiates the wafer with radiation to form the image on the wafer; and  
providing the stage assembly made by the method of claim 20.

20 25. A method of making a wafer utilizing the exposure apparatus made by the method of claim 24.

26. A method of making an object including at least the exposure process; wherein the exposure process utilizes the exposure apparatus made by the method of claim 24.

25 27. A method for making a stage assembly that moves a device an X stroke along an X axis and along a Y axis, the method comprising the steps of:  
providing a stage that retains the device;  
providing a guide base; and

5 moving the stage along the Y axis relative to the guide base with a Y mover, the Y mover including a reaction component and a moving component that is secured to the stage; wherein one of the components includes a magnet having a magnet length that extends along the X axis and the other component includes a conductor having a conductor length along the X axis, and wherein the conductor length is at least as long as the combination of the X stroke along the X axis plus the magnet length.

10 28. The method of claim 27 wherein the step of moving the stage includes the step of providing a reaction component that includes the magnet and the step of providing a moving component that includes the conductor.

15 29. A method for making an exposure apparatus that forms an image on a wafer, the method comprising the steps of:  
providing an irradiation apparatus that irradiates the wafer with radiation to form the image on the wafer; and  
providing the stage assembly made by the method of claim 27.

20 30. A method of making a wafer utilizing the exposure apparatus made by the method of claim 29.

31. A method of making an object including at least the exposure process; wherein the exposure process utilizes the exposure apparatus made  
25 by the method of claim 29.